OFFICE OF INSPECTOR GENERAL

U.S. Department of Energy

INSPECTION REPORT

DOE-OIG-22-26

February 2022

LOS ALAMOS NATIONAL LABORATORY STEAM PLANT ENERGY SAVINGS PERFORMANCE CONTRACT – PHASE ONE

Department of Energy
Washington, DC 20585

February 8, 2022

MEMORANDUM FOR THE UNDER SECRETARY FOR NUCLEAR SECURITY;
ADMINISTRATOR, NATIONAL NUCLEAR SECURITY
ADMINISTRATION

SUBJECT: Inspection Report on Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract – Phase One

The attached report discusses our review of the Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract. This report contains four recommendations that, if fully implemented, should help ensure that future energy savings performance contracts are adequately managed and include sound baseline and escalation rates for savings to be achieved. Management concurred in principle with Recommendation 1 and nonconcurred with Recommendations 2, 3, and 4.

We conducted this inspection from December 2019 through January 2021 in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*. We appreciated the cooperation and assistance received during this evaluation.

Earl Omer
Assistant Inspector General
for Audits
Office of Inspector General

cc: Deputy Secretary
Chief of Staff

Department of Energy
Office of Inspector General

Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract – Phase One
(DOE-OIG-22-26)

WHY THE OIG PERFORMED THIS REVIEW

Federal agencies have the authority to enter into Energy Savings Performance Contracts (ESPCs) for energy savings and facility improvements without upfront capital costs or appropriations from Congress. During each contract year, the total payments to the ESPC contractor cannot exceed the amount that the agency would have otherwise paid. National Nuclear Security Administration (NNSA) awarded a $128 million contract for a Steam Plant ESPC at the Los Alamos National Laboratory (LANL).

Due to concerns raised by the Department of Energy's ESPC Review Board that did not appear to be fully addressed, we initiated this inspection to determine whether NNSA could support the guaranteed cost savings identified in the LANL Steam Plant ESPC – Phase One.

What Did the OIG Find?

We found that NNSA could not support $75 million of the $128 million in guaranteed cost savings identified in the LANL Steam Plant ESPC – Phase One. Specifically, the Los Alamos Field Office: (1) could not provide documentation to support that the operation and maintenance labor savings would be realized, putting $32 million in guaranteed energy savings at risk; (2) had documentation to support the initial electric baseline rate used to determine the guaranteed energy savings of the ESPC, however, declines in the electric rates before the contract was finalized put approximately $31 million in guaranteed energy savings at risk; and (3) could not provide sufficient documentation to support the 3 percent electric escalation rate used in the investment grade audit, putting an additional $12 million in guaranteed energy savings at risk.

We attributed these issues to NNSA officials not fully addressing concerns raised by a Los Alamos Field Office official responsible for the ESPC and the Department's ESPC Review Board, which identified that the Steam Plant ESPC was at risk of not meeting the guaranteed energy savings. In addition, we identified that the 2014 Federal Energy Management Program *ESPC Workshop Handbook* did not outline how to account for operation and maintenance labor savings.

What Is the Impact?

The Steam Plant ESPC is at risk of exceeding the amount that the agency would have paid for utilities without an ESPC, which is not in the Department's or taxpayer's best interest.

What Is the Path Forward?

To address the issues identified in this report, we have made four recommendations that, if fully implemented, should help ensure that future ESPCs are adequately managed.

BACKGROUND

The Department of Energy's National Nuclear Security Administration (NNSA) awarded an Energy Savings Performance Contract (ESPC) for the Los Alamos National Laboratory (LANL) Steam Plant to Siemens Government Technologies, Inc. (Siemens). The estimated contract ceiling for the LANL Steam Plant ESPC was $554.6 million and included three phases. While Phase One was awarded in September 2018, the subsequent two phases were not pursued because, according to NNSA, the cost of electricity was going down. Phase One of the awarded contract was financed for 17 years and valued at $128 million. To help support and outline the energy savings, Siemens developed the *National Nuclear Security Administration Energy Savings Performance Contract Los Alamos National Laboratory Steam Plant Acquisition Final Proposal* (September 11, 2018) for the ESPC. The proposal identifies the considered Energy Conservation Measures (ECMs) and their feasibility, energy savings calculations, rationale for ECM selection, cost to implement each ECM with detailed backup information, and savings of each ECM with detailed supporting data. The proposal includes an Investment Grade Audit (IGA) that detailed and analyzed three ECMs, which included replacing the existing boilers with high efficiency boilers, upgrades to the combustion gas turbine generator, and installing a high-pressure natural gas pipeline. The IGA also identified savings projections from operation and maintenance (O&M) and energy savings for each ECM. The LANL Steam Plant ESPC replacements and upgrades were designed to update a 67-year-old power plant, which is at the end of its service life and, when completed, should provide reliable, efficient, and sustainable heat and electricity to LANL's Technical Area-03 campus.

ESPCs are a special method of financing energy saving projects, allowing Federal agencies to procure energy savings and facility improvements with no upfront capital costs or special appropriations from Congress. An ESPC is a partnership between an agency and an energy service company. Title 42 United States Code Section 8287 gives Federal agencies the authority to enter into ESPCs with the stipulation that during the ESPC contract years, total annual payments to both utilities and ESPC contractors cannot exceed the amount that the agency would have paid for utilities without an ESPC. In other words, the project is supposed to pay for itself by lowering the amount of energy used at the site, resulting in a lower utility bill. The utility bill savings are then used to pay the ESPC contractor for the cost of the project. In addition, the Siemens' indefinite delivery indefinite quantity contract requires the use of the Federal Energy Management Program's (FEMP) *Measurement and Verification Guidelines: Measurement and Verification for Federal Energy Projects* when developing the ESPC. Further, NNSA's Business Operating Procedure 436.1, *Supplemental Procedures for Alternative Financed Energy Savings Projects*, states that the Department's ESPC Review Board (Review Board) members are to be provided access to preliminary assessments and IGA documents needed for its review and comment. Given the risks associated with using an ESPC, the Review Board was established with the primary purpose of increasing the probability of a successful ESPC. However, while concurrence from the Review Board used to be mandatory, this restriction was removed when the Review Board was moved from FEMP to the Department's Sustainability Performance Division. Specifically, under the Sustainability Performance Division, the Review Board only acts in an advisory capacity, and concurrence with the Review Board's recommendations are not mandatory.

However, the Department expects the Review Board's questions to be addressed in completing the evaluation of the project. Furthermore, the Review Board's procedures identify that the program/site office is expected to respond to each question and request for clarification brought forth by the Review Board.

In 2018, prior to NNSA finalizing the contract with Siemens, the Review Board reviewed the LANL Steam Plant ESPC and identified significant concerns with the project. Specifically, in a July 2018 Memorandum, the Review Board questioned: (1) whether positions would be eliminated to achieve the guaranteed O&M labor savings; (2) the validity of the data used for calculating electric baseline rates; (3) the method used for calculating the energy price escalation rate; and (4) whether the generator would meet the projected maximum operating hours. In addition, the July 2018 Memorandum also identifies that some of their concerns might have been addressed if additional information had been provided as required by the ESPC Review Board's procedures. However, according to the Memorandum, the information the Review Board received indicated a number of significant risks, in addition to those inherent in any ESPC. During our initial assessment, we could not find where the Review Board's concerns were fully addressed. Therefore, we initiated this inspection to determine whether NNSA could support the guaranteed cost savings identified in the LANL Steam Plant ESPC – Phase One.

NNSA COULD NOT SUPPORT GUARANTEED COST SAVINGS

We found that NNSA could not support $75 million of the $128 million in guaranteed cost savings identified in the LANL Steam Plant ESPC, resulting in NNSA being at high risk of noncompliance with Title 42 United States Code Section 8287 by exceeding the amount that the agency would have paid for utilities without an ESPC (i.e., the ESPC may not pay for itself with the energy savings it is supposed to generate). Specifically, when we evaluated four areas of concern identified by the Review Board, we found that the Los Alamos Field Office:

- Could not provide documentation to support that the O&M labor savings would be realized, putting $32 million in guaranteed energy savings at risk.

- Had documentation to support the initial electric baseline rate used to determine the guaranteed energy savings of the ESPC. However, significant declines in the electric rates before the contract was finalized put the Steam Plant ESPC at risk of not meeting approximately $31 million in guaranteed energy savings.

- Could not provide sufficient documentation to support the 3 percent electric escalation rate used in the IGA, putting an additional $12 million in guaranteed energy savings at risk.

- Provided documentation to support that the combustion gas turbine generator would be able to meet the agreed-upon operational hours.

We attributed these issues to an NNSA Safety Infrastructure and Operations Office (SIOO) official and an NNSA Acquisition and Project Management (APM) Office official not fully

addressing concerns that the LANL Steam Plant ESPC was at risk of not meeting the guaranteed energy savings, despite those risks being identified by both a Los Alamos Field Office official responsible for the ESPC and the Review Board responsible for ensuring ESPC projects were in the Department's and taxpayer's best interests. In addition, we identified that the 2014 FEMP *ESPC Workshop Handbook* did not outline how to account for O&M labor savings.

Unsupported O&M Labor Savings

The Los Alamos Field Office could not provide documentation to support that the O&M labor savings would be realized, putting $32 million of the $128 million in guaranteed energy savings at risk. With the installation of the high efficiency boilers, the IGA indicated the number of labor hours to maintain the new boilers would be significantly less than the old boilers, resulting in labor cost savings. Based on our review of the IGA and additional supporting documentation, we determined that the guaranteed O&M labor savings for the high efficiency boilers were not fully supported. According to FEMP, "savings" due to redirected labor, that do not reduce actual (budgeted) expenses, whether by in-house staff or O&M contractors, should not be claimed as savings in an ESPC. We requested additional documentation from the Los Alamos Field Office on how the O&M labor savings was determined for the high efficiency boilers. The Los Alamos Field Office provided no additional documentation that supported the O&M labor savings for the high efficiency boilers, but a Los Alamos Field Office official stated that the affected employees would be transferred from working on the old boilers to other future vacancies across LANL.

Because the Steam Plant upgrade was scheduled to be completed over 2 years after the ESPC was approved, we question the validity of this explanation since it would be difficult to predict whether a vacancy opening, set for 2 years in the future, would be filled by employees with specific skill sets. According to the IGA, the guaranteed labor savings for boilers in the first year was nearly $1.5 million, with a 3 percent annual escalation rate. In total, the unsupported O&M labor savings was projected to be $32 million, or 25 percent of the $128 million in savings over the life of the ESPC. (See Appendix 4, Table 1.)

Questionable Electric Baseline Rates

The Los Alamos Field Office had documentation to support the initial electric baseline rate of $65 per Megawatt hour (MWh), which was used to determine the guaranteed energy savings of the ESPC. However, declines in the electric rates before the contract was finalized put the $65 per MWh baseline rate in question and resulted in the Steam Plant ESPC being at risk of not meeting approximately $31million in guaranteed energy savings. (See Appendix 4, Table 2.) Specifically, FEMP guidelines state that the electric baseline rate could be defined by using historical data. Accordingly, we identified that the Los Alamos Field Office used historical electric rates from November 2015 through April 2016. The electric rates ranged from $56 per MWh to $79 per MWh with an average electric rate of $65 per MWh.

However, by June 2017, more than a year before awarding the ESPC, a downward trend in the electric rate had been identified by a Los Alamos Field Office official. An independent source and a LANL document had predicted lower electric rates for the Los Alamos area during the development of the ESPC. The independent contractor was hired to prepare forecasts of

commodity energy prices to have a basis for understanding the potential for electricity cost savings that the ESPC could achieve. The independent contractor's forecast identified that the cost of electricity would be much less than what is identified in the ESPC proposal. In addition, a *LANL ESPC Project Cost Evaluation White Paper* identified forecasts by the Los Alamos Power Pool, a collection of utility providers for the Los Alamos area, which also identified lower electrical costs than those identified in the ESPC proposal. For example, the ESPC proposal shows the projected cost of electricity in 2028 at $89.98 per MWh, while the independent contractor and the Los Alamos Power Pool forecast the 2028 cost at $60.26 and $50.34, respectively. (See Table 1.)

Table 1: ESPC Proposal vs. Forecasts

Year*	ESPC Proposal	Independent Assessment	Los Alamos Power Pool
2021	$73.16	$39.50	$54.31
2025	$82.34	$51.61	$52.40
2028	$89.98	$60.26	$50.34

*Note: The ESPC proposal and the independent assessment rates identified in Table 1 are in calendar years, while the Los Alamos Power Pool rates are in fiscal years.

It is critical that the proposed baselines be sound because the baselines are the cornerstones of the savings calculations. However, by the time the contract was awarded in September 2018, the actual electric rate was averaging $53 per MWh for the preceding 12 months. In fact, the actual price of electricity has not been in-line with the ESPC proposal for the first 3 years of the project. For example, in 2019, the ESPC proposal had the cost of electricity projected at $68.96 per MWh. In contrast, the actual cost of electricity from the Los Alamos Power Pool was only $52.24 per MWh, a $16.72 difference. (See Table 2.)

Table 2: ESPC Proposal vs. Actual Average Price of Electricity for LANL

Year	ESPC Proposal	Actual Average Cost	Difference
2018	$66.95	$56.77	$10.18
2019	$68.96	$52.24	$16.72
2020	$71.03	$58.03	$13.00

Finally, as stated above, this ESPC originally had three phases. According to NNSA, the subsequent two phases were not pursued because the cost of electricity had gone down. Phases Two and Three used the same electrical baseline rate of $65 per MWh.

In light of the two forecasts, the actual cost of electricity over 3 years, and the fact that Phases Two and Three were cancelled due to falling electricity prices, we conclude that the $65 per MWh baseline rate puts the ESPC at risk of not being able to pay for itself with the energy cost savings it is supposed to generate. Specifically, in Appendix 4, Table 2, the difference between the ESPC proposed baseline rate of $65 per MWh versus the FY 2018 average cost of electricity of $53 per MWh (both using the ESPC proposal escalation rate over the 17-year financed period) shows that the ESPC will be at risk of not generating $31 million of the $128 million in energy savings it was supposed to generate.

Unsupported Electric Escalation Rate

The Los Alamos Field Office could not provide sufficient documentation to support the 3 percent electric escalation rate[1] used in the IGA, putting an additional $12 million of the $128 million in guaranteed energy savings at risk. FEMP encourages, although it does not require, agencies to rely on the National Institute of Standards and Technology's Energy Escalation Rate Calculator (EERC) for credible escalation rates. According to a FEMP official, if the EERC is not used, FEMP recommends using the existing utility rates to estimate energy escalation rates. In response to our preliminary draft, FEMP stated that a FEMP support team provided input on the ESPC escalation rates and agreed another approach, other than the EERC, could work based on LANL's unique situation.

While we acknowledge that a different approach might be appropriate based on situations unique to LANL, the documentation provided to us did not fully support use of the 3 percent escalation rate in this particular ESPC. Specifically, the IGA states that electricity would escalate at a rate of 3 percent per year without sufficient support for the 3 percent escalation rate. The IGA only states that Siemens and NNSA had looked at the EERC and determined that it did not accurately represent the LANL area. No support was provided in the IGA as to how they concluded that the EERC did not represent the LANL area. As a result, we requested any other documentation that would support the 3 percent escalation rate per year for the LANL area. The only support we received was a document that was based on a discussion the Los Alamos Field Office had with Siemens. Per that document, Siemens stated that a general inflation rate of 3 percent was appropriate because it is what they typically used for long-term projects. There was no other sufficient support for the 3 percent electric escalation rate used.

The impact of the escalation rate applied can be substantial to the overall cost of electricity and, therefore, the projected guaranteed savings. For example, as documented in the IGA, the electric baseline rate of $65 per MWh with a projected escalation rate of 3 percent annually would result in a projected $113 per MWh by the end of the 17-year life of the ESPC. A FEMP official provided us with the EERC escalation rates that were applicable for 2016, 2017, and 2018, or the years from when the project solicitation was released to when the contract was signed. The EERC showed the escalation rates were 2 percent, 2.20 percent, and 2.20 percent, respectively. If the 2018 EERC escalation rate of 2.2 percent is applied, combined with the fiscal year 2018 average electric baseline rate of $53 per MWh, it results in only a projected $80 per MWh rate by the end of the 17-year life of the ESPC. Consequently, millions of dollars in energy savings could be at risk due to the questionable 3 percent escalation rate used in the IGA. If the EERC projected escalation is applied, it puts an additional $12 million in guaranteed energy savings at risk. (See Appendix 4, Table 3.)

Generator Operational Hours

The Los Alamos Field Office provided documentation to support that the combustion gas turbine generator would be able to meet the agreed-upon operational hours. The upgrades to the combustion gas turbine generator, which supplements electricity at LANL, were designed to

[1] According to FEMP's *Guidance on Utility Rate Estimations and Weather Normalization in Performance Contracts*, the escalation rate is the rate of change in price for a particular good or service.

increase the number of operating hours the generator could run from 400 to nearly 5,000 hours per year. Our review found that the New Mexico Environmental Department authorized an air permit providing a specified amount of natural gas that could be consumed annually. Specifically, the permit limited LANL's annual natural gas consumption to no more than 1,400 million standard cubic feet of natural gas in any 12-month period. Based on that natural gas consumption, the Los Alamos Field Office provided evidence that confirmed the generator would be able to run up to 4,978 hours annually without violating the air permit. According to a Los Alamos Field Office official, maintaining the air quality was a significant factor that governed the LANL Steam Plant ESPC. In addition, the official stated that the demand to run the generator would be there based on LANL's expected future growth and increasing mission. Further, Siemens accounted for the generator's maintenance annually from April through May, plus an additional 18 days annually for maintenance, reducing the risk of maintenance impeding the generator from reaching the 4,978 hours needed to produce the energy savings. As a result, we conclude that LANL should be able to operate the generator for the maximum number of allowable hours.

UNADDRESSED CONCERNS AND INADEQUATE TRAINING

We attribute these issues to an NNSA SIOO official and an NNSA APM Office official not fully addressing concerns that the LANL Steam Plant ESPC was at risk of not meeting the guaranteed energy savings despite those risks being identified by both a Los Alamos Field Office official responsible for the ESPC and the Review Board responsible for ensuring ESPC projects were in the Department's and taxpayer's best interest. In addition, we identified that the 2014 FEMP *ESPC Workshop Handbook* did not outline how to account for O&M labor savings.

Official's Concerns Not Fully Addressed

An NNSA SIOO official and an NNSA APM Office official did not fully address concerns from a Los Alamos Field Office official regarding the rapidly declining cost of electricity. Our review identified that information on the declining electric baseline rates was communicated to the responsible NNSA SIOO official and the responsible NNSA APM Office official well before the contract was signed in September 2018. Specifically, in 2016, the Los Alamos Field Office provided the $65 per MWh initial electric baseline rate to an NNSA APM Office official and Siemens as the starting point for which all electric energy savings would be calculated. Subsequently, in June 2017, a Los Alamos Field Office official presented information to the NNSA SIOO official and the NNSA APM Office official addressing the decline in electric rates. In addition, in a May 2017 email, the Los Alamos Field Office official expressed concerns to an NNSA APM Office official that the $65 per MWh baseline rate was risky given the changing utility rates, noting that small rate differences could greatly impact the bottom-line figures. The same official also stated that Siemens was concerned with the Los Alamos Field Office's "reaction" when they found out that the monthly bill the Los Alamos Field Office would have to pay was above what the Los Alamos Field Office expected they could buy off the market.

The NNSA APM Office official responded to the Los Alamos Field Office official that all contracts have an inherent risk and not to focus on the fact that the ESPC may not perform as expected. The NNSA APM Office official wanted as much scope as possible in the IGA for

flexibility and encouraged the Los Alamos Field Office official to focus on the positive so an award recommendation could be written for the NNSA SIOO official's concurrence. We acknowledge all contracts have an inherent risk; however, if there was concern by Federal officials that an ESPC contract would not perform as expected, then the ESPC should not have been used. Therefore, NNSA could be at risk of paying more for utilities under this contract than on the open market. We conclude that appropriated funds or other funding mechanisms may have been more suitable to protect taxpayer's interests.

ESPC Review Board Concerns Not Fully Addressed

The NNSA APM Office and SIOO officials did not address the Review Board's concerns. As an advisory board responsible for ensuring ESPC projects are in the Department's and taxpayer's best interest, the Review Board reviews potential ESPCs. The Review Board is designed to help ensure that each proposed ESPC project provides a favorable financial return to the Department and the Government. As such, it makes recommendations to the program developing the ESPC. Although concurrence with, or implementation of the Review Board's recommendations are not mandatory, the Department has set an expectation that the Review Board's questions will be addressed.

In 2018, prior to NNSA finalizing the contract, the Review Board reviewed the LANL Steam Plant ESPC. The Review Board identified significant concerns with the project and recommended that the project not go forward since its concerns were unaddressed. The Review Board's concerns were documented in a memorandum to the NNSA SIOO official, the approving official for the ESPC. Some of the concerns raised included whether positions would be eliminated to achieve the guaranteed O&M labor savings, the validity of the data used for calculating electric baseline rates, the method used for calculating the energy price escalation rate, and whether the generator would meet the projected maximum operating hours.

Our review identified that not all the Review Board's concerns were adequately addressed prior to signing the contract. Specifically, the Review Board provided its comments to the NNSA APM Office, and our review identified that those comments were answered. However, the Review Board's subsequent Memorandum to the NNSA SIOO official notes the NNSA APM Office did not adequately respond to all the Review Board's comments. Specifically, the July 2018 Memorandum states that a number of concerns that the Review Board raised to the procurement team had not been addressed. For example, when a Review Board member expressed concerns about how O&M labor savings would be achieved, NNSA responded that overall reduction in operation staffing was anticipated but did not expand on how the savings or staff reductions would be accomplished. Following NNSA's response to the Review Board's comments, the Review Board remained concerned that the proposal "seemed to contemplate retaining the current workforce." As a result, the Review Board issued a Memorandum to the NNSA SIOO official recommending against proceeding with the ESPC contract. Despite the Review Board issuing a recommendation not to proceed, the NNSA SIOO and NNSA APM Office officials approved the ESPC without adequately resolving the Review Board's concerns. Our review determined the issues identified by the Review Board were credible and should have been fully addressed to ensure the project could withstand scrutiny and increase the likelihood of meeting its $128 million in guaranteed savings.

Inadequate Training

Although most of the individuals involved with the LANL Steam Plant ESPC attended the FEMP ESPC training in 2014, the 2014 FEMP *ESPC Workshop Handbook* did not outline how to account for O&M labor savings. Specifically, our review of the training manual found that there was no mention of how to account for O&M labor savings in the 2014 Handbook. This is concerning because when we questioned an NNSA APM Office official about the high O&M labor savings rate, the official noted initial concerns about whether the transferring of employees into other positions was considered real savings but ultimately signed the contract. However, we conclude that had the NNSA APM Office official had training on how to account for O&M labor savings, the official would have potentially addressed the O&M labor savings issue before signing the contract. By the time the 2015 *FEMP Comprehensive ESPC Workshop Handbook* had been developed, this issue had been rectified. Specifically, the 2015 Handbook indicated that the O&M labor cost savings must be "real" to be claimed. In short, the agency must demonstrate actual contract or staff reductions to claim the savings. Reducing tasks of existing staff, or transferring existing staff to other jobs, does not count as savings unless there is a vacant position that needs to be filled. Although the training issue was rectified in 2015, most individuals involved with the LANL Steam Plant ESPC had not taken the updated training.

In response to our draft report, FEMP stated that the training on O&M labor savings would have been covered "beyond the bullets" in the 2014 training manual, providing more information on how to achieve compliant O&M labor savings. FEMP asserted that the *How to Determine and Verify Operating and Maintenance Savings in Federal Energy Savings Performance Contracts* (Guidance) would have been covered in class. While we verified that the Guidance does show that O&M labor savings need to demonstrate an actual reduction of the workforce to be claimed, we were unable to verify FEMPs assertion that this extra "beyond the bullets" training occurred, as the Guidance is not specifically mentioned in the 2014 training manual. In addition, FEMP provided us with a supplemental document that it asserted taught how to account for O&M labor savings. Specifically, FEMP sent us an exercise that we confirmed was presented in the class. Within the training there is a section that covers the Risk, Responsibility, and Performance Matrix. The exercise states that O&M and water savings must be based on actual spending reductions. While it does state that the savings have to be actual spending reductions, when we contrasted this statement to the 2015 and 2019 Workshop Handbooks, this statement from the exercise is unclear. Specifically, the 2015 and 2019 Workshop Handbook clearly state that to claim O&M labor savings, those saving have to be an actual reduction in staff, not just reducing tasks of existing employees. Therefore, we were unable to verify FEMP's assertion that they teach "beyond the bullets" and that the exercise provides clarity that actual staff reductions must occur for the savings to be real.

ESPC SAVINGS MAY NOT MEET CONTRACTOR PAYMENTS

As a result, the LANL Steam Plant ESPC is at high risk of being in noncompliance with Title 42 United States Code Section 8287 by exceeding the amount that the agency would have paid in utilities without an ESPC (i.e., the ESPC may not pay for itself with energy savings), which is not in the Department's or taxpayer's best interests. We calculated that there could be approximately $75 million of unrealized savings for the ESPC, which includes approximately

$32 million in unrealized guaranteed O&M labor savings, approximately $31 million in unrealized guaranteed electric baseline savings, and approximately $12 million in unrealized guaranteed escalation rate savings over the life of the contract. In response to our preliminary report, NNSA stated that utility prices for the LANL area are volatile and subject to significant fluctuations. Based on the data we reviewed, we agree that utility prices in the LANL area appear to be volatile, and we question the decision to invest taxpayer dollars into an ESPC that has a considerable risk of not meeting the guaranteed savings due to the significant utility price volatility. In addition, NNSA stated that the project was in the best interest of the Government due to, among other things, increased energy security and resiliency and reliable long-term supply of heating and additional electricity in support of mission and improved environmental sustainability and reduced carbon footprint. Given all this, NNSA told us that the potential benefits outweighed the risks identified by the Review Board and proceeded with the project.

RECOMMENDATIONS

Based on the potential risks to cost savings achievement outlined in our findings, we recommend that the Under Secretary for Nuclear Security and Administrator, NNSA:

1. Ensure that ESPCs are adequately reviewed prior to signing the contract to verify that the baseline and escalation rates are supported and reflect the current market conditions;

2. Ensure that the Department's ESPC Review Board concerns are adequately addressed on all proposed ESPCs before the contract is signed;

3. Ensure that those responsible for oversight of ESPCs take the updated FEMP ESPC training before working on another ESPC; and

4. Reevaluate the viability of the LANL Steam Plant ESPC contract regularly during construction and at startup.

MANAGEMENT RESPONSE

Management concurred in principle with Recommendation 1 and nonconcurred with Recommendations 2, 3, and 4. Specifically, management concurred in principle with Recommendation 1 to verify that baseline and escalation rates are supported and reflect current market conditions. Management stated it would be a best practice to verify current rates prior to contract award to ensure that consideration of current conditions in the final approval decision is documented. Management expects to have actions completed for this issue by March 30, 2022. However, management stated that the ESPC Review Board's concerns were adequately addressed and stated that NNSA had several discussions with Review Board members to clarify the comments and responses. After considering the comments, NNSA determined that moving forward with the contract was in the best interest of the Government. In addition, management nonconcurred that those responsible for oversight of ESPCs needed to take updated ESPC training and asserted that O&M training was covered in the 2014 FEMP *ESPC Workshop Handbook*. However, management also stated that NNSA will continue to ensure individuals involved in ESPCs take current FEMP ESPC training. Further, management nonconcurred that

the viability of the ESPC needed to be reevaluated regularly. Management stated that the Steam Plant ESPC was in the best interest of the Government by modernizing the LANL campus heating infrastructure increasing energy security, reliability, and resilience, and reducing its carbon footprint without capital investments. Management comments are included in Appendix 3.

AUDITOR COMMENTS

We commend NNSA for taking action to address concerns identified with the baseline and escalation rates. We conclude that completion of its stated actions will help reduce the risk of noncompliant ESPCs. However, we disagree with NNSA's assertion that this report presumes the current prevailing rates at the time of award were the most critical factor in determining the appropriate rates for use in an ESPC. Specifically, an independent source and a LANL document had predicted lower electric rates for the Los Alamos area during the development of the ESPC. These sources project electricity costs more than $25 per MWh lower than the ESPC proposal in both 2025 and 2028. Therefore, the current prevailing rates at the time of award may not be the most critical factor in determining; however, it should be a critical factor in determining the appropriate rates for use in an ESPC. Further, NNSA did not pursue the subsequent two phases of the project because, according to NNSA, the cost of electricity was going down. Because NNSA determined that the two subsequent phases were not economically viable, and due to the risks of not generating the cost savings identified in the ESPC proposal, we conclude it is imperative that NNSA regularly monitor and reevaluate the Steam Plant ESPC – Phase One to ensure it is in compliance with Title 42 United States Code Section 8287, which requires the ESPC to pay for itself in energy savings regardless of the additional benefits that management asserts the upgraded Steam Plant will provide LANL.

Regarding NNSA's assertion that the ESPC Review Board's concerns were adequately addressed, we stand by our conclusion that the ESPC Review Board's concerns were not adequately addressed. As discussed in our report, the ESPC Review Board themselves stated that its concerns were not adequately addressed by NNSA's response. In addition, our work verified credible ESPC Review Board concerns with baseline and escalation rates and in claiming unsupported O&M labor savings. Finally, as stated in our report, we could not verify management's assertions that the 2014 FEMP *ESPC Workshop Handbook* specifically trained how to calculate O&M labor savings. By signing the contract with unsupported O&M labor savings, the 2014 training in this area appears less than adequate. In addition, while management nonconcurred with our recommendation to ensure responsible officials take updated training, management noted that it will "continue to ensure that individuals involved in ESPCs […] take current FEMP ESPC training," which seems to imply that they implemented our recommendation. However, we observed that it is NNSA's current practice to require staff to take applicable training once, without regard to updates. We found responsible ESPC officials that took the 2014 training did not take the updated 2015 training before participating on this 2018 proposal. We found that the Department's *FEMP Ordering Guide* encourages organizations to have all project officials complete one or more ESPC-related training courses within 12 months of project start. Based on this guidance, updated training should be taken at the start of new ESPC projects. Continuing the current practice may lead to responsible individuals not receiving the benefit of new or clarified training and result in including

unsupported savings in potential ESPC cost saving calculations. Therefore, we stand by our recommendation that those responsible for oversight of the ESPCs take the most updated FEMP ESPC training before working on another ESPC to ensure appropriate calculations of potential energy savings.

OBJECTIVE

We conducted this inspection to determine whether National Nuclear Security Administration (NNSA) could support the guaranteed cost savings identified in the Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract (ESPC) – Phase One.

SCOPE

The inspection was performed from December 2019 through January 2021 at the Los Alamos Field Office in Los Alamos, New Mexico. In 2018, prior to NNSA finalizing the contract with Siemens Government Technologies, Inc., the Department of Energy's ESPC Review Board reviewed Phase One of the Los Alamos National Laboratory Steam Plant ESPC and identified significant concerns with the project. Specifically, the Department's ESPC Review Board questioned: (1) whether positions would be eliminated to achieve the guaranteed operation and maintenance labor savings; (2) the validity of the data used for calculating the electric baseline rates; (3) the method used for calculating the energy price escalation rate; and (4) whether the generator would meet the projected maximum operating hours. We initiated this inspection because, as a result of these concerns, the Department's ESPC Review Board recommended not moving forward with the Los Alamos National Laboratory Steam Plant ESPC. In addition, these areas were identified as critical in the *National Nuclear Security Administration Energy Savings Performance Contract Los Alamos National Laboratory Steam Plant Acquisition Final Proposal* (Volume 1, September 11, 2018). This inspection was conducted under the Office of Inspector General project number S19AL014.

METHODOLOGY

To accomplish our inspection objective, we:

- Reviewed applicable procedures, laws, regulations, and guidance pertaining to ESPCs, the Department's ESPC Review Board, and the Federal Energy Management Program;
- Reviewed reports issued by the Office of Inspector General and Government Accountability Office;
- Interviewed relevant personnel at the Department's Headquarters, Albuquerque Complex, and Los Alamos Field Office;
- Reviewed guaranteed operation and maintenance labor savings in the Investment Grade Audit and requested and reviewed documentation that supported the operation and maintenance labor savings;
- Analyzed and compared established electric baseline and escalation rates for the combustion gas turbine generator in the Investment Grade Audit against fiscal year 2018 figures to identify whether NNSA would achieve the savings necessary to pay for Phase One of the ESPC; and

- Obtained a copy of the New Mexico Environment Department air quality permit for the generator to understand how NNSA developed the annual operating hours for the generator.

We conducted this inspection in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation* (January 2012). Those standards require that we plan and perform the inspection to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions and observations based on our inspection objective. We believe that the evidence obtained provided a reasonable basis for our conclusions and observations based on our inspection objective. Accordingly, the inspection included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the inspection objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our inspection. Finally, we assessed the reliability of data used to establish the electric baseline by: (1) conducting testing on a sample of monthly invoices; (2) verifying the invoices corresponded with the data; (3) confirming the source of the data; and (4) interviewing agency officials knowledgeable about the data. We determined that the data were sufficiently reliable for the purposes of this report.

Management officials waived an exit conference on September 8, 2021.

Office of Inspector General

- Audit Report on *National Nuclear Security Administration's Energy Savings Performance Contracts* (DOE-OIG-18-07, November 2017). The report disclosed energy savings measures at Los Alamos National Laboratory (LANL) and Y-12 National Security Complex did not always achieve the full energy savings under the contracts. Specifically, it was discovered that the National Nuclear Security administration (NNSA) entered into an Energy Savings Performance Contract (ESPC) at LANL, which included the installation of energy savings lighting equipment that was not installed. NNSA paid an energy service company the full contracted amount even though the company reported that it failed to meet guaranteed savings that were to be achieved from upgrading thermostats at LANL. LANL used different thermostat settings than what the ESPC specified for several buildings, resulting in NNSA not achieving the full savings from the thermostat upgrades that were completed. At Y-12 National Security Complex, an ESPC had not achieved the full savings from one of its energy savings measures that involved reconnecting a condensate return system in a facility. Additionally, the audit team was tasked with validating an allegation that NNSA modified an ESPC for work at LANL that increased the cost, extended the schedule, and reduced the scope of the contract.

- Audit Report on *Energy Savings Performance Contract Review Board* (OAI-L-16-04, December 2015). The report identified an area in which the Review Board's responsibilities and procedures could be clarified to help ensure that the Department of Energy's ESPCs are in the Government's best interests. Specifically, it was noted that some sites have demonstrated a reluctance to submit ESPC proposals to the Review Board because of the concern over protecting procurement sensitive information. The report made a suggestion to take action to clarify the Review Board's role in protecting the procurement sensitivity of ESPC proposals. This should enable the Sustainability Performance Office to better ensure that the Review Board receives ESPC proposals, identifies problems, and communicates issues prior to awarding ESPCs.

- Audit Report on *Energy Savings Performance Contract Biomass Project at the Oak Ridge National Laboratory* (OAI-L-16-03, November 2015). The report identified an issue with the original terms and conditions of the ESPC which could have complicated the resolution process at the Oak Ridge National Laboratory Site Office. Specifically, the Site Office modified the ESPC contract such that Johnson Controls Government Systems LLC (Johnson Controls) would demolish the biomass plant and replace it with a natural gas system. Under the modified ESPC, the original payment terms and schedule were unchanged. In particular, per the terms in the contract negotiated in 2009, the Site Office was responsible for equipment repair or replacement of the biomass plant after the original warranty period expired. The ESPC stipulated that the biomass plant had a 1-year manufacturer's warranty that began at project acceptance. In March 2012, the Site Office extended a "conditional" project acceptance of the ESPC with the caveat that Johnson Controls complete several outstanding items. It was this conditional acceptance that led to the Site Office's and Johnson Controls' opposing views as to whether the

warranty period had started and if the plant was under warranty at the time the corrosion was discovered. Due to the nature of the conditional acceptance, the Site Office and Johnson Controls sought to reach a mutually acceptable resolution to the failed biomass plant, which resulted in the agreement to substitute the biomass plant with a natural gas boiler and leave other ESPC terms unchanged.

- Audit Report on *The Department of Energy's Administration of Energy Savings Performance Contract Biomass Projects* (DOE/IG-0892, August 2013). The report identified planning and operational issues with the Oak Ridge Biomass Plant that could cause the Department to incur more than necessary over the life of the project. Specifically, they noted that the Oak Ridge Site Office had not always planned and operated its Biomass Plant to minimize the Government's risk and had not: required site characterization testing and mitigation of adverse conditions prior to awarding an ESPC that involved a major construction project; mitigated the risk of biomass fuel storages and cost fluctuations; and verified the quantity of biomass fuel deliveries. These problems were due in part to inadequate guidance and oversight. Notably, the Department had not required major ESPC construction projects to adhere to critical elements of its existing capital project management and acquisition directive. Also, the Department had not developed a process to identify, document, and disseminate lessons learned from ESPC projects across the complex.

- Audit Report on *Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy* (DOE/IG-0822, September 2009). The report identified that the audit team's detailed review of four of the Department's largest ESPC orders determined that the Department had not always effectively used ESPC orders to achieve energy savings and had not ensured that the Government's interests were adequately protected in this process. Because of these issues, the Department may risk spending more than it will realize in energy savings. The audit team noted that the Department had not: ceased payments to the Energy Savings Company after projects had stopped generating savings; verified that ESPC orders had generated the contractually required energy savings; ensured that equipment installed as part of the ESPC order was appropriately operated and maintained to achieve anticipated energy savings; and taken actions to include all costs necessary to implement the energy savings initiative when evaluating whether the project was likely to be cost-effective. The report also noted that the Department had not adequately managed, monitored, and controlled the individual orders. In addition, the Department also had not taken the basic step of ensuring that Contracting Officers were assigned to the ESPC orders. The majority of those Federal and facility contractor officials charged with management of ESPC orders had either received no training or received training that was not sufficiently detailed to permit them to fully understand or perform all required duties. Lastly, the audit team noted problems with guidance that may have contributed to issues with the failure to include all implementation costs in the ESPC order savings calculations and utility rate projections.

Government Accountability Office

- *ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight* (GAO-15-432, June 2015). This report identified that cost and energy savings that contractors reported to agencies for most ESPCs met or exceeded expectations, but some of these savings may be overstated. Contractors calculate and report savings annually in accordance with plans agreed to in their contracts with agencies. These plans include assumptions about agencies' use of equipment, which may change over the life of the contract. If changes reduce project savings, such as when an agency does not operate or maintain the equipment as agreed, contractors are not required to reduce the amount of savings they report or measure the effects of the changes. Federal guidance states that when reviewing contractor reports, agencies should understand changes in project performance and savings levels and what actions should be taken to address deficiencies.

Department of Energy
Under Secretary for Nuclear Security
Administrator, National Nuclear Security Administration
Washington, DC 20585

April 12, 2021

MEMORANDUM FOR TERI L. DONALDSON
INSPECTOR GENERAL

FROM: CHARLES P. VERDON
ACTING UNDER SECRETARY FOR NUCLEAR SECURITY
AND ADMINISTRATOR, NNSA

SUBJECT: Response to the Office of Inspector General Draft Report *Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract – Phase One* (S19AL014)

Thank you for the opportunity to review and comment on the subject draft report. The National Nuclear Security Administration (NNSA) implements Energy Savings Performance Contracts (ESPC) to the maximum extent practicable to leverage appropriated dollars to improve the condition of infrastructure across the nuclear security enterprise. As noted in the subject report, the Los Alamos National Laboratory (LANL) Steam Plant ESPC replacements and upgrades were designed to update a 67 year-old power plant, which is at the end of its service life and, when completed, should provide reliable, efficient, and sustainable heat and electricity to LANL's Technical Area-03 campus. Additional benefits from the project include: increased energy security and resiliency; reliable, long-term supply of heating and additional electricity in support of mission; improved environmental sustainability and reduced carbon footprint; reduced Operations and Maintenance costs; reduced electrical supply and pricing risk (a major supplier of power to the site, the San Juan Plant, is closing in June 2022); and 30-year design life criteria that extends the equipment beyond the 17-year contract term, which is forecast to result in savings from cost avoidance.

NNSA recognizes that the LANL Steam Plant ESPC is a long-term contract that carries some measure of risk. While NNSA agrees that there are opportunities for improvement in the documentation of certain aspects of the contract development, the financial risks presented in the inspection report are speculative and overstated. The report presumes the current prevailing rates at the time of award are the most critical factor in determining the appropriate rates for use in an ESPC. The suggested rates for this ESPC were based on informed opinions of subject matter experts after considering various inputs and long term data (36 months), including but not limited to: the *LANL Power Procurement Strategy Load Growth, Sources, and Cost Model*; actual rate data from LANL Energy Contracts and invoices; consultation with the Department of Energy's Federal Energy Management Program (FEMP); and technical expert consulting contractors, all of which used the Energy Information Agency's projections of electricity and natural gas prices in the Annual Energy Outlook 2017. This is a complex process involving months of negotiations and analysis, including the use of technical contractors with recognized

expertise. In this case, there is no evidence to indicate that such a review would have changed the contract rates.

The attached management decision provides a detailed response to each recommendation. Subject matter experts have also provided technical comments under separate cover for the auditors' consideration to address the issues noted above and enhance the accuracy and clarity of information presented in the report. If you have any questions regarding this response, please contact Mr. Dean Childs, Director, Audits and Internal Affairs, at (301) 903-1341.

Attachment

Attachment

NATIONAL NUCLEAR SECURITY ADMINISTRATION
Management Decision

*Los Alamos National Laboratory Steam Plant Energy Savings Performance Contract – Phase One (*S19AL014)

The Office of Inspector General (OIG) recommended that NNSA:

Recommendation 1: Ensure that Energy Savings Performance Contracts (ESPC) are adequately reviewed prior to signing the contract to verify that the baseline and escalation rates are supported and reflect the current market conditions.

Management Response: Concur in principle. The report's conclusion that the baseline electric rates were calculated using six months of outdated historical data is misleading. Further, we do not concur with the implication that the current prevailing rates at the time of award are the most critical factor in determining the appropriate rates for use in an ESPC. The suggested rates for this ESPC were based on informed opinions of subject matter experts after considering various inputs and long term data (36 months), including but not limited to: the *Los Alamos National Laboratories (LANL) Power Procurement Strategy Load Growth, Sources, and Cost Model*; actual rate data from LANL Energy Contracts and invoices; consultation with the Department of Energy's Federal Energy Management Program (FEMP); and technical expert consulting contractors, all of which used the Energy Information Agency's projections of electricity and natural gas prices in the Annual Energy Outlook 2017. This is a complex process involving months of negotiations and analysis, including the use of technical contractors with recognized expertise. In this case, there is no evidence to indicate that such a review would have changed the contract rates.

We agree, however, that it would be a best practice to verify current rates prior to contract award to ensure the consideration of current conditions in the final approval decision is documented. NNSA's Office of Safety, Infrastructure, and Operations (NA-50) will update its Business Operating Procedure 436.1, *Supplemental Procedures for Alternative Financed Energy Savings Projects*, to include a step for the contracting officer (CO), NA-50 subject matter experts, and contracting officer representative to review future ESPCs (including consideration of current rates) prior to the CO signing the contract, engage others as necessary, and document the results of the review. The estimated completion date for this action is March 30, 2022.

Recommendation 2: Ensure that the Department's ESPC Review Board concerns are adequately addressed on all proposed ESPCs before the contract is signed.

Management Response: Non-concur. NNSA disagrees with the report's assertion that the ESPC Review Board concerns were not adequately addressed. Per the ESPC Review Board's informal operating procedures, the Board functions in an advisory capacity and

concurrence by the submitting Program with the Boards' recommendations is not mandatory. In fact, the Board procedures specifically state that "initiating the review process does not require the Contracting Officer/DOE Program/Site Office to address the Review Board member's comments in the project." Rather, it is expected that the program respond to each question and request for clarification brought forth by the Review Board. In this case, NNSA followed the procedures outlined in NNSA Business Operating Procedure 436.1, *Supplemental Procedures for Alternative Financed Energy Savings Projects*, for providing a written response to the Board. NNSA then held several discussions with Review Board members to clarify the comments and responses. Ultimately, after considering the comments, NNSA determined that moving forward with the contract was in the best interest of the Government. NNSA considers this recommendation closed.

Recommendation 3: Ensure that those responsible for oversight of ESPCs take the updated FEMP ESPC training before working on another ESPC.

Management Response: Non-concur. As noted in the report, the individuals involved with the LANL Steam Plant ESPC attended the FEMP ESPC training in 2014. The statements in the report that the training did not outline how to account for operations and maintenance (O&M) labor savings are not factually accurate. Specifically, training was provided at LANL in February 2014 that covered O&M savings, as shown in the 2014 ESPC Workshop Handbook. NNSA will continue to ensure that individuals involved in ESPCs, including the contracting officer, contracting officer representative, and NA-50 subject matter experts, take current FEMP ESPC training. NNSA considers this recommendation closed.

Recommendation 4: Re-evaluate the viability of the LANL Steam Plant ESPC contract regularly during construction and at startup.

Management Response: Non-concur. As written, this recommendation is vague and not actionable. While we acknowledge the inherent cost risk associated with fluctuations in the baseline electric rates, the Steam Plant ESPC contract continues to be in the best interest of the Government to modernize the LANL campus heating infrastructure and will increase energy security, reliability, and resilience and reduce the carbon footprint without capital investments.

Appendix 4: Tables

TABLE 1: Unsupported Operation and Maintenance (O&M) Labor Savings		
	Annual Escalation Rate Identified in the Investment Grade Audit (IGA)	**Estimated Boiler O&M Labor Savings**
Year 1*		$1,487,376.00
Year 2	3%	$1,531,997.28
Year 3	3%	$1,577,957.20
Year 4	3%	$1,625,295.91
Year 5	3%	$1,674,054.79
Year 6	3%	$1,724,276.44
Year 7	3%	$1,776,004.73
Year 8	3%	$1,829,284.87
Year 9	3%	$1,884,163.42
Year 10	3%	$1,940,688.32
Year 11	3%	$1,998,908.97
Year 12	3%	$2,058,876.24
Year 13	3%	$2,120,642.52
Year 14	3%	$2,184,261.80
Year 15	3%	$2,249,789.65
Year 16	3%	$2,317,283.34
Year 17	3%	$2,386,801.84
Total Unsupported O&M Labor Savings		**$32,367,663.33**

*Year 1 was found in the IGA, and the rest of the years were calculated, escalating at 3 percent per year.

Appendix 4: Tables

TABLE 2: Electric Baseline Guaranteed Savings at Risk							
	Electric Rate per Megawatt hour (MWh) with 3% Escalation Rate Identified in the IGA	**Projected Annual Electric Cost Using 108,841 MWh Identified in the IGA**	**Projected Utility Costs***	**Electric Rate per MWh with 3% Escalation Rate at the Time the Contract Was Signed**	**Projected Annual Electric Cost Using 108,841 MWh Identified in the IGA**	**Projected Utility Costs***	**Projected Utility Costs Difference Using a Baseline Rate of $65 per MWh Compared to $53 per MWh**
Baseline	$65.00			$53.00			
Implementation Year	$66.95			$54.59			
Implementation Year	$68.96			$56.23			
Year 1	$71.03	$7,730,978.79	$3,956,144.59	$57.91	$6,303,477.55	$2,528,646.95	$1,427,497.64
Year 2	$73.16	$7,962,810.19	$4,150,231.45	$59.65	$6,492,581.88	$2,680,002.97	$1,470,228.48
Year 3	$75.35	$8,201,172.06	$4,350,468.46	$61.44	$6,687,359.34	$2,836,654.64	$1,513,813.82
Year 4	$77.61	$8,447,152.80	$4,557,944.01	$63.28	$6,887,980.12	$2,998,768.37	$1,559,175.64
Year 5	$79.94	$8,700,752.42	$4,772,646.58	$65.18	$7,094,619.52	$3,166,515.66	$1,606,130.92
Year 6	$82.34	$8,961,970.90	$4,994,587.69	$67.14	$7,307,458.11	$3,340,073.20	$1,654,514.49
Year 7	$84.81	$9,230,808.26	$5,223,744.30	$69.15	$7,526,681.85	$3,519,623.10	$1,704,121.21
Year 8	$87.35	$9,507,264.49	$5,460,139.46	$71.23	$7,752,482.30	$3,705,352.96	$1,754,786.50
Year 9	$89.98	$9,793,516.42	$5,705,915.41	$73.36	$7,985,056.77	$3,897,456.14	$1,808,459.27
Year 10	$92.67	$10,086,298.81	$5,957,818.45	$75.57	$8,224,608.48	$4,096,131.84	$1,861,686.61
Year 11	$95.45	$10,388,876.89	$6,219,113.80	$77.83	$8,471,346.73	$4,301,585.33	$1,917,528.47
Year 12	$98.32	$10,701,250.66	$6,489,789.94	$80.17	$8,725,487.13	$4,514,028.11	$1,975,761.83
Year 13	$101.27	$11,022,331.72	$6,768,758.46	$82.57	$8,987,251.75	$4,733,678.14	$2,035,080.33
Year 14	$104.31	$11,353,208.47	$7,057,096.25	$85.05	$9,256,869.30	$4,960,759.95	$2,096,336.30
Year 15	$107.44	$11,693,880.91	$7,354,814.83	$87.60	$9,534,575.38	$5,195,504.94	$2,159,309.89
Year 16	$110.66	$12,044,349.04	$7,661,891.16	$90.23	$9,820,612.64	$5,438,151.50	$2,223,739.66
Year 17	$113.98	$12,405,701.28	$7,979,413.63	$92.94	$10,115,231.02	$5,688,945.26	$2,290,468.37
Total			$98,660,518.46			**$67,601,879.05**	**$31,058,639.41**
***Includes the Reduction in Natural Gas**							

TABLE 3: Unsupported Electric Escalation Rate Putting Guaranteed Savings at Risk					
	Electric Rate per MWh with 3% Escalation Rate Identified in the IGA	**Projected Annual Electric Cost Using 108,841 MWh Identified in the IGA**	**Electric Rate per MWh with 2.2% Escalation Rate Identified by the Energy Escalation Rate Calculator**	**Projected Annual Electric Cost Using 108,841 MWh Identified in the IGA**	**Difference Between the 3% and 2.2% Escalation Rates**
Baseline	$65.00		$53.00		
Implementation Year	$66.95		$54.17		
Implementation Year	$68.96		$55.36		
Year 1	$71.03	$7,730,978.79	$56.58	$6,158,225.82	$1,572,752.97
Year 2	$73.16	$7,962,810.19	$57.82	$6,293,706.78	$1,669,103.41
Year 3	$75.35	$8,201,172.06	$59.10	$6,432,168.33	$1,769,003.73
Year 4	$77.61	$8,447,152.80	$60.40	$6,573,676.04	$1,873,476.77
Year 5	$79.94	$8,700,752.42	$61.73	$6,718,296.91	$1,982,455.51
Year 6	$82.34	$8,961,970.90	$63.08	$6,866,099.44	$2,095,871.46
Year 7	$84.81	$9,230,808.26	$64.47	$7,017,153.63	$2,213,654.63
Year 8	$87.35	$9,507,264.49	$65.89	$7,171,531.01	$2,335,733.48
Year 9	$89.98	$9,793,516.42	$67.34	$7,329,304.69	$2,464,211.73
Year 10	$92.67	$10,086,298.81	$68.82	$7,490,549.40	$2,595,749.41
Year 11	$95.45	$10,388,876.89	$70.34	$7,655,341.48	$2,733,535.40
Year 12	$98.32	$10,701,250.66	$71.88	$7,823,758.99	$2,877,491.66
Year 13	$101.27	$11,022,331.72	$73.46	$7,995,881.69	$3,026,450.02
Year 14	$104.31	$11,353,208.47	$75.08	$8,171,791.09	$3,181,417.38
Year 15	$107.44	$11,693,880.91	$76.73	$8,351,570.49	$3,342,310.41
Year 16	$110.66	$12,044,349.04	$78.42	$8,535,305.04	$3,509,044.00
Year 17	$113.98	$12,405,701.28	$80.15	$8,723,081.76	$3,682,619.53
Total Utility Cost Difference					$42,924,881.51
Difference in the Electric Baseline (Table 2)					($31,058,639.41)
Total Difference in the Escalation Rates					$11,866,242.10

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